

# Army Industrial Hygiene Newsletter

Winter 2004

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## Director's Corner

A message from Ms. Donna Doganiero, USACHPPM Director of Occupational Health Sciences and President of The American Industrial Hygiene Association.

### ***What Does An Industrial Hygienist Do Anyway?***

Can you define IH in marketing terms to the Commander and can you communicate what you do to the supervisors and workers. "Now tell me again, what is it exactly that you do?" I'm sure you've been asked this question or something like during your career as an industrial hygienist. In the January 2005 issue of the Synergist, AIHA journal, the president's message talked about making a transition towards growing our profession. The article mentioned the profession needed: 1) to have a global perspective, 2) to continue to move forward and capitalize on increased interest in non-traditional hazards such as emergency response and indoor air quality, 3) to develop a PR plan to define IH in marketing terms and communicate our role to the public, and 4) to Encourage OH&S education not only at the undergraduate level but also in the high schools.

I'd like to focus on developing public relations. It is my hope that while AIHA is working these issues you might want to reflect on your own initiative and strategy in the area of getting the word out about your work as an Army installation industrial hygienist. Here are some questions to ask to see how marketable and visible your IH services are. Does the installation Commander know what services the industrial hygiene program provides? Does the installation safety office know? What is your industrial hygiene program's most valuable service to the installation? How do supervisors define your services? Do supervisors know who to contact and how? And do they contact you? What do the front-line employees know about your program? Can they tell you what an industrial hygienist does? How do you define what you do? Do you get requests for services that your industrial hygiene program does not provide, like changing out light bulbs or spraying for insects? Or maybe after five years of working at the installation you still get asked "Who are you and what are you doing in our shop?" Based on your answers to these questions, your IH program may have a public relations problem.

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## Director's Corner (con't)

The board and staff developed the following core messages with input from AIHA members, and a committee of volunteer leaders, that AIHA will use with all media and the public.

- Industrial hygienists anticipate health and safety issues and design solutions to prevent them.
- Industrial hygiene is a long-term, profitable investment with a powerful return: worker health and safety, lower risk, and improved productivity.
- Industrial hygienists represent science, not hysteria. They apply real science to identify and solve health and safety problems.
- Industrial hygienists are workplace detectives, finding and fixing health and safety problems.
- Industrial hygienists unite management, workers and all segments of a company behind the common goal of health and safety.

Consider how you can convey what you do to the average lay person. It may not be easy but if you take a little time out of your busy schedule to promote your industrial hygiene services you may just reinvent your program. Then they'll be knocking down your doors and ringing your phones off the hook for all the "*right reasons*." Adapted from The Synergist, Dec 2004, Becoming a Cadillac, pp 6&8.

## ENVIRONMENTALLY FRIENDLY SOLVENT CAUSES NERVE DAMAGE

### *1 – Bromopropane Shown to Cause Nerve Damage*

Extracted from Hazardous Technical Information Services (HTIS) Bulletin, Jan-Feb 05. During a 2004 meeting of the American Neurological Association a neurologist revealed that long-term exposures to 1-bromopropane (1-BP or n-propyl bromide) in high concentrations could cause nerve damage. The 1-BP (CAS 106-94-5) was introduced to replace ozone-depleting chemicals. This study of factory workers showed nerve damage, including leg or foot pain with sensory loss, weakness of both legs, and walking problems in workers using spray adhesive containing 1-BP to glue together foam cushions. Some workers complained of chronic pain even after they were removed from the job. Poor ventilation was the suspect main cause that resulted in the over-exposure of 1-BP. Air samples showed concentrations of 130 ppm one day after the company stopped using the chemical. Currently, the OSHA has no PEL for 1-BP. The EPA has set the safe exposure level at 25 ppm. The compound 1-BP is a highly volatile solvent and poses a potential inhalation or skin hazard. Sufficient exhaust ventilation should be made available. For more information on 1-BP, visit web site at:

[http://joh.med.uoeh-u.ac.jp/pdf/E40/E40\\_3\\_14.pdf](http://joh.med.uoeh-u.ac.jp/pdf/E40/E40_3_14.pdf) You can view the original article in its entirety at:  
<http://www.dscr.dla.mil/userweb/htis/jan-feb05.pdf>

# INDUSTRIAL HYGIENE TECHNICAL TIPS. DID YOU KNOW.....

## **HEARING CONSERVATION**

Field Attenuation of Hearing Protection. To calculate the attenuation afforded to a noise-exposed employee in an actual work environment by muffs, plugs, or a combination of both refer to Evaluation of Hearing Protection, section VI(b) and figure III: 5-1. Exchange Rate. Remember to use a 3 dB exchange rate setting for noise dosimeters. The OSHA exchange rate should not be used in lieu of the DA standard (reference DA Pam 40-501).

## **EXPOSURE LIMITS**

Calculating Exposure Limits for Adjusted TLV Values for Unusual Work Shifts. The easiest and more conservative approach (compared to the OSHA model) is the Brief & Scala Model. (Source: Brief R, Scala R., Occupational Exposure Limits for Novel Work Schedules, American Industrial Hygiene Association Journal, 36:467-469, 1975). There is also a discussion in Patty's Industrial Hygiene and Toxicology, and the ACGIH TLV booklet. A good article on this subject is available at <http://www.cdc.gov/elcosh/docs/d0400/d000415/d000415.html>. Refer to the 1998 NIOSH Noise Criteria document, paragraph 1.1 for calculating noise exposure limits for work shifts other than 8 hours or refer to Table 1-1, both available at <http://www.cdc.gov/niosh/pdfs/98-126-a.pdf>.

Use of Current ACGIH TLV Values. Due to numerous recent changes in TLV values, IH personnel must use the more current edition of the TLVs. Many changes in the TLV value require the use of specific particle sizing technology (e.g., respirable fraction, thoracic fraction) when conducting air sampling, instead of total dusts, fumes or particulates in the past.

## **RESPIRATORY PROTECTION**

Cartridge Change-out Schedule Calculations. Many IH personnel are the only installation personnel knowledgeable enough in science to determine cartridge change-out schedules for respirator chemical cartridge users as required by OSHA since 1998 (refer to <http://www.osha.gov/SLTC/respiratoryprotection/changeout.html> and [http://www.osha.gov/SLTC/etools/respiratory/change\\_schedule.html](http://www.osha.gov/SLTC/etools/respiratory/change_schedule.html)). Note that most calculations are based on Wood's equation ([http://www.osha.gov/SLTC/etools/respiratory/wood\\_table/wood\\_model/wood\\_model.html](http://www.osha.gov/SLTC/etools/respiratory/wood_table/wood_model/wood_model.html)) with variations due to different cartridge sizes. Most major respirator manufacturers provide downloadable program that calculate change-out schedules for their specific models after required data has been entered by the user.

## **VENTILATION**

Difference in the Use, Field Testing and Evaluation Procedures for Biological Safety Cabinets (BSCs) and Laminar Flow Clean Benches (LFCBs) Versus Chemical Laboratory Hoods (CLHs). Some IH personnel do not understand that BSCs and LFCBs provide different levels of protection to the user, product and environment versus CLHs, as well as requiring very different testing methods. Specialized training is required to field test BSCs and LFCBs. Explanations are available at <http://ohs.uvic.ca/biosafety/biosafetycabinets.html> and <http://www.ibc.umn.edu/biosafetyCabinets.html> with a presentation also found at <http://www.som.tulane.edu/oehs/dsrppslides/trainingdsr1stqtr2004/laboratory/ventilationlab.ppt>.

BSC Field Testing. Biological safety cabinets are certified per National Sanitation Foundation (NSF)/ANSI Standard 49 [http://www.nsf.org/business/biosafety\\_cabinetry/index.asp?program=BiosafetyCab](http://www.nsf.org/business/biosafety_cabinetry/index.asp?program=BiosafetyCab). Refer to NSF 49 for details on BSC testing procedures.

LFCB Field Testing. The LFCBs are tested for filter leakage in a similar manner as for BSCs, although the test procedure most commonly referenced is the 1973 Federal Standard 209-B, page 18, section 40.3.5 (Clean Room and Work Station Requirements, Controlled Environment), because it's the only version that specifies an airflow value (90 feet per minute average, and uniformity within  $\pm 20\%$  across the entire area of the air exit). This value has been interpreted over the years to mean the air velocity average for LFCBs should be between 72-108 feet per minute (refer to <http://www.envservices.com/services/laminar.htm> for a more detailed explanation on field testing of LFCBs).

## INDUSTRIAL HYGIENE TECHNICAL TIPS. DID YOU KNOW.....(con't)

Use of Antineoplastic Agents/Cytotoxic Drugs. DA regulations state that when antineoplastic agents/cytotoxic drugs are used in BSCs, they must be field tested at least twice a year.

Competency Requirements. Though no DA regulation requires that a NSF certified tester must conduct these field tests (or certification), this is the only available indicator of certifier competence. The NSF provides a site at <http://www.nsf.org/Certified/Biosafety-Certifier/> that can be used to find and/or verify that individuals are NSF bio-safety cabinet field accredited.

Training. The Eagleston Institute, a non-profit organization, provides training on safe laboratory practices and ventilation. In addition, Eagleston provides bio-safety cabinet certification accreditation courses (refer to <http://www.eagleston.org/> for more information).

Other Resources. Another informative site on BSCs and LFCBs is available at <http://bakerco.com/resources/introbench.php>. Also, refer to USCHPPM Technical Guide (TG) 149, Guidelines for Controlling Occupational Exposure to Hazardous Drugs, June 2001, for more information at <http://chppm-www.apgea.army.mil/documents/TG/TECHGUID/TG149.pdf>.

Contract BSC and LFCB Field Testing Oversight. Contract specifications and contractors should be periodically reviewed and audited to ensure they are following NSF 49 and Federal Standard 209-B when field testing BSCs and LFCBs, in addition to using qualified field testers for evaluating these two types of engineering controls.

### **LEAD STANDARD**

Lead Surface Contamination. When checking workplaces for lead contamination, some IH folks are not aware of the lead surface contamination standard. Lead surface contamination limits for hygiene facilities and practices is currently 200 micrograms per square feet (i.e., change areas, storage facilities and lunchrooms/eating areas) (reference OSHA CPL 02-02-058, December 13, 1993, 29 CFR 1926.62. Lead Exposure in Construction; Interim Final Rule- - Inspection and Compliance Procedures), available at [http://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=DIRECTIVES&p\\_id=1570](http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=DIRECTIVES&p_id=1570) (Page 18 of 39, "Regulation and Inspection Guidance" section). The limit was derived from the HUD guidelines for acceptable levels of lead decontamination. POC for Technical tips is Mark Lucas

## WHAT IS THE DIFFERENCE BETWEEN THE IHISR AND IH METRIC?

The IHISR is an annual self-assessment completed by the IH program manager, the information is consolidated, analyzed and programs are ranked red, amber, green. We send the information to the RMCs for distribution to the IH Program Managers, with hopes that they will use it to isolate problem areas and work to fix them. Also, CHPPM project officers use the IHISR to help with site assistant visits. The IHISR was also used as a metric in the Balanced Score Card, a management improvement initiative used by MEDCOM. Regina Litvin, USACHPPM is the POC.

The IH Metrics were developed by the Program Office of Preventive Medicine to show deficiencies in IH program execution that could be resolved with additional resourcing. The metrics were introduced in Draft DoDI 6055.5, Occupational and Environmental Medicine, and the POPM uses their authority to direct IH programs to complete them annually via a web site. The POPM has plans to validate the metrics and responses by visiting select sites. Kate Neufeld, USACHPPM is the POC.

Together these program management tools assist the Army with the objective of improving IH programs and tracking improvements.

## ERGONOMIC NEWS

Ergonomic News The 40th issue of “DoD Ergonomics Working Group News”--focusing on overtime and absenteeism issues faced by the International community.

Reducing Number of Employees = Increasing Health Care Expenses.

Ergonomics is the Answer When Absenteeism Soars 25%.

Fighting Absentee Rates with Workstation Ergonomics.

To view the newsletter click on the following link: <http://www.ergoworkinggroup.org/ewgweb/IndexFrames/index3.htm> Click on Publications. Click on Ergo News

## ACGIH PRESS RELEASES

ACGIH Press Releases ACGIH® BOARD RATIFIES 2005 TLVs® AND BEIs®

To view the document go to <http://www.acgih.org/resources/press/TLVBEI2005.htm>

## JOINT COMMISSION RESOURCES/ENVIRONMENT OF CARE NEWS HIGHLIGHTS FOR FEBRUARY 2005

Joint Commission Resources/Environment of Care News highlights for February 2005

Organizing Chaos: Emergency Management During a Hurricane

Emergency Management Watch: How to Conduct an Emergency Management Drill Part 2

National Patient Safety Goals and the Environment of Care Preventing Operating Room Fires Part 1

Current subscribers may access this issue by clicking on the following link: <http://www.jcrinc.com/ecnews>

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## TRAINING OPPORTUNITIES AND CONFERENCES

Intermediate IH Course 7-18 March, Edgewood, MD application process closes 15 February 2005. For registration form, visit the USACHPPM Web site:

[https://usachppm.apgea.army.mil/TrainCon/eform.aspx?Name=Intermediate\\_Hygiene\\_topics](https://usachppm.apgea.army.mil/TrainCon/eform.aspx?Name=Intermediate_Hygiene_topics).

DOD Industrial Hygiene Forum, 24 May 2005 to be held during the 2005 AIHC&E Anaheim, CA

Defense Leadership and Management Program (DLAMP), Class of 2005, MEDCOM's suspense to APPD, Civilian Personnel Division, is 11 March 2005 Click here for more information on DLAMP and the application process. <http://cpol.army.mil/library/train/catalog/ch04dlamp.html>. DA civilian employees, GS/GM-13/14/15, are eligible for this training program.